

ELECTRIC LAKE



Introduction

Electric Lake is a large reservoir on Huntington Creek high on the east slope of the Wasatch Plateau. It is a popular recreation site that is managed as a catch-and-release fishery. The reservoir was created in 1974 by the construction of an earth-fill dam. The shoreline is primarily owned by Utah Power and Light (UP&L) and the

Huntington-Cleveland Irrigation Company. Some access points are limited but the northern end of the reservoir is adjacent to the national forest and access is unrestricted to the reservoir at that point. Water is consumed for

Characteristics and Morphometry	
Lake elevation (meters / feet)	2,613.5 / 8,575
Surface area (hectares / acres)	172 / 425
Watershed area (hectares / acres)	7,770 / 19,200
Volume (m ³ / acre-feet)	
capacity	43,771,500 / 35,500
conservation pool	
Annual inflow (m ³ / acre-feet)	24,461,487 / 19,839
Retention time (years)	1.8
Drawdown (m ³ / acre-feet)	
Depth (meters / feet)	
maximum	66 / 217
mean	25 / 84
Length (km / miles)	6.1 / 1.6
Width (km / miles)	0.3 / 0.2
Shoreline (km / miles)	17.1 / 10.6

Location	
County	Emery
Longitude / Latitude	111 13 12 / 39 36 26
USGS Map	Scofield 1979, Candland Mountain 1979
DeLorme's Atlas and Gazetteer™	Page 46 C-2
Cataloging Unit	San Rafael (14060009)

irrigation and power plant cooling, but also used for recreation and coldwater aquatic habitat. Enough water is stored to provide enough cooling water for a four year drought, so water levels remain deep throughout most summers. This greatly enhances recreational use.

Recreation

Electric Lake is accessible from U-31 and U-264. U-31 follows the south shore for about 0.5 miles near the dam.

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miles east of Fairview City and 27 miles northwest of Huntington), but there is no boat ramp at this access. U-264 follows the north shore for 1/2 mile (6 miles east of jct U-31 and 9 miles west of jct U-96). There are latrines and a concrete boat ramp at this site. Visitors are required to pack out their own trash. Both state highways are maintained year-round, making the area popular for winter recreation.

Although the area generally receives moderate recreational use, heavy usage occurs on summer weekends. Fishing is the primary activity, however, boating, camping, swimming, nordic skiing, sledding and snowmobiling are also popular with visitors. The reservoir is large enough for waterskiing, but the water is too cold for most skiers. If you like large, uncrowded lakes and cold water, this is the place for you. Near the northwest tip of the lake there is a smaller impoundment, Boulger Lake, which is an excellent put and take family fishery.

There are two Forest Service campgrounds near the lake: Flat Canyon Campground, 1 mile west on U-264, with 13 campsites and picnic tables, and Old Folks Flat campground, 6 miles southeast on U-31, with 6 campsites and picnic tables. Both campgrounds charge fees.

Watershed Description

The lake is in a narrow stream valley characteristic of the mid-elevations of the Wasatch Plateau. The reservoir is built to store water for up to four years of drought, so the reservoir is large in comparison to the watershed. The canyon walls are steep (30 - 40% slopes). Higher elevations have coniferous forests, while lower elevations and south-facing slopes are vegetated with grass and sagebrush. The watershed has extremely heavy snowfall in the winter.

The watershed high point, the west shoulder of Monument Peak, is 3,079 m (10,100 ft) above sea level, thereby developing a complex slope of 16.7% to the reservoir. The average stream gradient above the reservoir is 2.6% (138 feet per mile). The major inflows are Upper Huntington Creek, Boulger Creek, Coal Creek, and a number of ephemeral tributaries. The outflow is Huntington Creek. The upper slopes of the top of Boulger Canyon are diverted into the Fairview Lakes. Boulger Reservoir, the only upstream impoundment, is a small reservoir on Boulger Creek.

The soil is of limestone origin. Landforms in the watershed are high mountains and valleys. Soil associations are in Appendix III.

The vegetation communities are comprised of bitterbrush, mountain mahogany, pinyon, juniper, sagebrush-grass, pine, aspen, spruce-fir, oak and maple. The watershed receives 76 cm (30 inches) of precipitation annually with a frost-free season of 40 - 60 days at the reservoir.

Land use in the reservoir is 100% multiple use. Primary human uses include hunting, recreation and livestock grazing.

Limnological Assessment

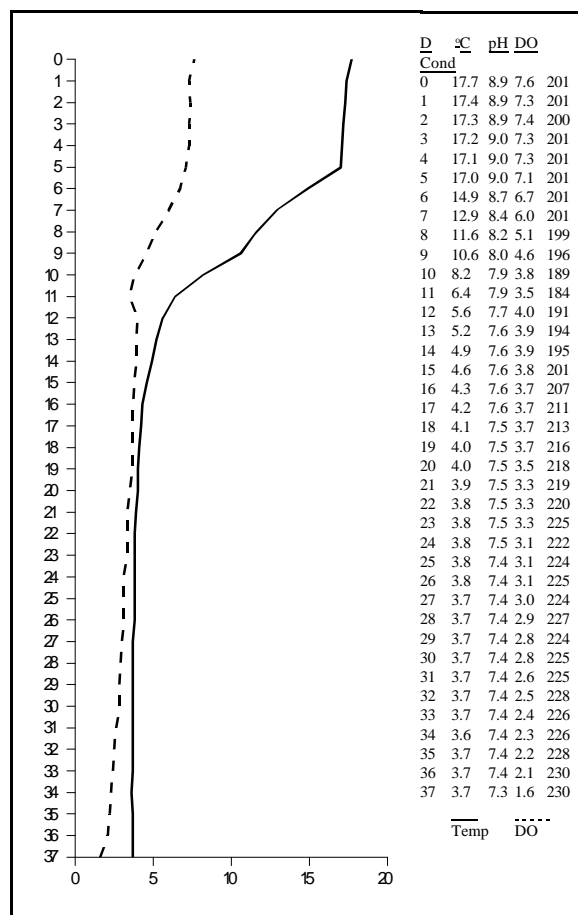
The water quality of Electric Lake is very good. It is considered to be moderately hard with a hardness concentration value of approximately 111 mg/L (CaCO₃). The only parameters that have exceeded State water quality standards for defined beneficial uses are pH and dissolved oxygen. It is not atypical for a body of water to exceed the pH standard during periods of high algal production near the surface and during the daylight hours.

Limnological Data			
Data averaged from STORET sites: 493119, 493120			
Surface Data	1979	1989	1991
Trophic Status	M	O	M
Chlorophyll TSI	-	41.26	45.47
Secchi Depth TSI	-	41.01	61.52
Phosphorous TSI	47.35	36.01	42.21
Average TSI	47.35	39.43	49.74
Chlorophyll <i>a</i> (ug/L)	-	3.0	4.6
Transparency (m)	-	3.8	1.4
Total Phosphorous (ug/L)	20	9	14
pH	8.23	8.8	8.7
Total Susp. Solids (mg/L)	<5	-	<3
Total Volatile Solids (mg/L)	-	-	2
Total Residual Solids (mg/L)	-	-	<3
Temperature (°C / °f)	14/57	15/59	11/52
Conductivity (umhos/cm)	202	199	194
Water Column Data			
Ammonia (mg/L)	0.05	0.02	0.03
Nitrate/Nitrite (mg/L)	0.46	0.15	0.25
Hardness (mg/L)	119	-	103
Alkalinity (mg/L)	112	-	94
Silica (mg/L)	-	-	1.9
Total Phosphorous (ug/L)	19	10	13
Miscellaneous Data			
DO (Mg/l) at 75% depth	1.0	7.3	2.9
Stratification (m)	8-10	5-8	5-11
Limiting Nutrient	P	N	P
Depth at Deepest Site (m)	68	50	37

Average values throughout the water column as in the case of Electric Lake do not exceed the criteria. It is readily apparent from the August 29, 1991 profile that the dissolved oxygen concentrations drop off significantly below the thermocline (6-11 meters) to concentrations near the bottom of 1.6 mg/L. The majority of the water

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column will not support a viable fishery under these circumstances. The tendency of this deep impoundment to stratify and what appears to be a high oxygen demand in the hypolimnion causes a loss of oxygen in the lower waters of the lake. These conditions, if severe enough will



lead to an internal loading of phosphorus from the sediments.

The trophic status for the reservoir appears to be unstable but is probably mesotrophic. It appears that it has moderated over time. Although it was reported as oligotrophic in 1989, it bounced back to a mesotrophic state in 1991. The secchi depth values in 1991 appear a little high but could be the result of a heavy algal bloom at the time of sampling. Additional sampling will need to be done to ascertain a stable trophic state. The data suggest that the reservoir is probably phosphorus limited but it should be noted that in 1989 the data suggest that the system was nitrogen limited. According to DWR no fish kills have been reported in recent years. The reservoir supports a population of cutthroat trout (*Oncorhynchus clarkii*). DWR typically stocks the reservoir with fingerling cutthroat trout. The DWR manages the lake as a catch

and release fishery.

The reservoir has not been treated to control rough fish competition, so original populations of Huntington Creek fishes may be found in the area. While there is no formal conservation pool, the lake is rarely drained below 80% of capacity, as most of the stored water is insurance for dry years. During the dry years of the late 1980's and early 90's, the reservoir was drawn very low. Macrophytes are typically not present and are not a problem.

Phytoplankton in the euphotic zone include the following taxa (in order of dominance)

Species	Cell Volume (mm ³ /liter)	% Density By Volume
<i>Pandorina morum</i>	0.222	64.40
<i>Asterionella formosa</i>	0.066	19.16
<i>Oocystis sp.</i>	0.033	9.66
Centric diatoms	0.009	2.75
<i>Oscillatoria sp.</i>	0.006	1.74
<i>Chlamydomonas globosa</i>		0.0005
1.32 Pennate diatoms	0.003	0.97
Total	0.000	
Shannon-Weaver [H']	1.10	
Species Evenness	0.56	
Species Richness [d]	0.31	

As observed the phytoplankton community is dominated by flagellates and diatoms indicative of high quality water with lower productivity.

Information

Management Agencies

Manti-La Sal National Forest and Price Range	637-2817
Southeastern Association of Governments	637-5444
Division of Wildlife Resources	538-4700
Division of Water Quality	538-6146

Recreation

Castle Country Travel Region (Price)	637-3009
Castle Dale Chamber of Commerce	381-2547

Reservoir Administrators

Huntington-Cleveland Irrigation Company	687-2505
Emery County Water Conservancy District	381-2311

Pollution Assessment

Nonpoint pollution sources include grazing, vacation

home activities, and recreation.

Cattle and cattle graze in the watershed and around the reservoir. Summer homes exist in the Boulger Canyon area.

There are no point pollution sources in the watershed.

Beneficial Use Classification

The state beneficial use classifications include: boating and similar recreation (excluding swimming) (2B), cold water game fish and organisms in their food chain (3A) and agricultural uses (4).